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(54) SYSTEM AND METHOD FOR DATA DISTRIBUTION

 (57)Abstract:
PROBLEM TO BE SOLVED: To actualize proper data distribution which can have its
bit rate set according to distribution conditions relating to the use, use conditions, etc.,
of terminal equipments when data are downloaded and distributed to the terminal
equipment.
SOLUTION: A system is disclosed which downloads and distributes, e.g. music data by
pieces of music from a library having an HDD 12 to the terminal equipment having a
memory card 2. A CPU 11 of this system downloads music data of a song selected by a
GUI 10 to the memory card 2 at a bit rate corresponding to selected sound quality.

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CLAIMS

[Claim(s)]

[Claim 1] The data distribution system characterized by to provide a decision means determine the bit rate of the data concerned, and a data-transmission means transmit the data concerned to said terminal equipment with the bit rate determined by said decision means based on the predetermined distribution conditions when distributing the data chosen from a data-storage means store the data which can be distributed to the terminal equipment which has a record medium, and said data-storage means to said terminal equipment.

[Claim 2] Said decision means is a data distribution system according to claim 1 characterized by having the function to determine the bit rate of data, based on selection of the quality information concerned with reference to the response relation of the data quality information and the bit rate which were distributed.

[Claim 3] It is the data distribution system according to claim 1 which has a means to detect the remaining capacity which can memorize the record medium contained in said terminal equipment, and is characterized by having the function for said decision means to make relation between the remaining

capacity of the record medium concerned, and the size of said data said

distribution conditions, and to determine the bit rate of data.

[Claim 4] For said terminal equipment, claim 1 to claim 3 characterized by being

the memory card which stores voice data or image data as said data is the data

distribution system of a publication either.

[Claim 5] The data distribution system characterized by to provide a

data-storage means store the data which can be distributed to the terminal

equipment which has a record medium, a means identify the codec method of

said terminal equipment, a setting-out means set it as the codec method

identified by said discernment means, and a data distribution means distribute

the data which used the codec method set up by said setting-out means, and

were chosen from a data-storage means to said terminal equipment.

[Claim 6] The step which is the download approach applied to the data

distribution system which distributes the specified data, and sets distribution

data as the terminal equipment which has a record medium, With reference to

the response relation between distribution data quality information and a bit rate,

with the bit rate determined by the step which determines the bit rate of

distribution data based on selection of the quality information concerned, and

said decision step the step which downloads the distribution data concerned to

said terminal equipment -- since -- the download approach characterized by

becoming.

[Claim 7] The program which it is [program] the program used for the computer

which downloads the data specified as the terminal equipment which has a

record medium, and realizes the function set up the data for download, the

function of determining the bit rate of the data concerned based on selection of

the quality information concerned with reference to the response relation

between data-quality information and a bit rate, and the function that download

the data concerned to said terminal equipment with said bit rate by said

computer.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] Generally this invention relates to the download function from the library which stored especially contents data to a terminal side about the data distribution system by the computer.

[0002]

[Description of the Prior Art] In recent years, voice data (digital data), such as music, is stored in the memory card which has IC memories, such as a flash EEPROM, and the pocket mold terminal equipment which can play music using the voice data read from the memory card concerned is developed. Various

kinds of terminal equipments, such as only for music playbacks and a multifunctional mold which also has a cellular-phone function, are contained in this pocket mold terminal equipment.

[0003] When playing music etc. using such a terminal equipment, the memory card used for a terminal equipment is made to download in usual contents data, such as music accumulated in the library. Here, libraries are the server which has equipped the hard disk drive for storing data, and a system (it consists of hardware and software) equivalent to the database of the contents data constituted with the personal computer.

[0004] By the way, voice data, such as music, will become high quality relatively, if the quality at the time of playback is dependent on a bit rate (kbps) and enlarges a bit rate. On the other hand, when a bit rate is enlarged, data size will increase. In the former, when downloading data from a library to a terminal equipment, download with the same bit rate as the data currently kept to the library is made.

[0005]

[Problem(s) to be Solved by the Invention] Since the data of high quality are kept in the library, download of data is always made by the terminal equipment with

the bit rate of high quality usual. For this reason, the size of the data downloaded relatively becomes large, and when the capacity of the memory card used with a terminal equipment is small, in the case of music, the number of music is restricted.

[0006] By the way, what is necessary is to be able to listen to music for the time being, only while having taken the electric car as an application of a terminal equipment besides appreciating music by good tone quality. Even if the tone quality of each music deteriorates somewhat for such an application, the way with possible most music is convenient.

[0007] When keeping data to a library by one side, and a bit rate is lowered and data size is made small, it becomes impossible however, to appreciate music by good tone quality with the downloaded data.

[0008] Then, the object of this invention is to realize suitable data distribution, as a bit rate can be set up based on the distribution conditions relevant to an application, a service condition, etc. of the terminal equipment concerned, when downloading and distributing data to a terminal equipment.

[0009]

[Means for Solving the Problem] This invention relates to the data distribution

system equipped with the function in which the bit rate at the time of download can be changed based on the distribution conditions relevant to an application, a service condition, etc. of the terminal equipment concerned, in the system which downloads and distributes the music data (it consists of digital voice data) for every music to the terminal equipment which has record media, such as a memory card. This data distribution system is a system which has the interface which constitutes the library which is a kind of database which stored the music data for a majority of every music names with a server or a personal computer, and can be connected with a terminal equipment.

[0010] Based on the predetermined distribution conditions when distributing the data chosen from a data storage means (for example, HDD) to store the data which can be distributed to the terminal equipment with which the system of this invention specifically has record media, such as a memory card, and the data storage means to a terminal equipment, it has a decision means determine the bit rate of the data concerned, and a data transmission means are the bit rate determined by the decision means, and transmit the data concerned to said terminal equipment.

[0011] When it was the system of such a configuration and a user chooses the

quality information which is equivalent to tone quality for every music name as distribution conditions, download is performed with the bit rate determined based on the quality information concerned. While the music data of the music name which followed, for example, required high quality are downloadable to a terminal equipment, although it is low quality, the music data of many music names are downloadable.

[0012] Moreover, based on the remaining capacity of the memory card used for a terminal equipment as another distribution conditions, it becomes possible from the size of the music data of the selected number of music to set up the bit rate at the time of download automatically. For this reason, the music data of the number of music corresponding to the remaining capacity of a memory card are downloadable.

[0013] In short, the contents data demanded from the library are downloadable to a terminal equipment so that service conditions, such as an application of a terminal equipment and remaining capacity of a memory card, may be suited. In this, the application of a terminal equipment and the amplification of a service condition which stored contents data enable it to aim at improvement in the engine performance of a terminal equipment as a result.

[0014]

[Embodiment of the Invention] With reference to a drawing, the gestalt of operation of this invention is explained below.

[0015] (System configuration) Drawing 1 is the block diagram showing the data distribution structure of a system related to this operation gestalt.

[0016] The data distribution system of this operation gestalt assumes the system which downloads contents data (here, music data are assumed) to the memory card 2 used for a terminal equipment from the body 1 of a computer which constitutes a personal computer or a server.

[0017] The body 1 of a computer has GUI (display screens 10A and 10B are included)10, CPU11, and a hard disk drive (HDD) 12, and constitutes the library which makes HDD12 concerned a data storage means. Here, the music data for a majority of every music names are stored in HDD12 with the bit rate (for example, 128kbps(es)) of high quality. CPU11 downloads the appointed music data from HDD12 to the memory card 2 contained in ejection and a terminal equipment by performing the program prepared beforehand according to the alter operation from GUI10 (data distribution).

[0018] The body 1 of a computer is equipped with the communication link

interface 13 for connecting with a terminal equipment or a memory card 2, and accessing the interface for performing data transmission, and the Internet 3. The body 1 of a computer downloaded music data from the Internet 3, and is equipped also with the function accumulated in a library.

[0019] The terminal equipment of this operation gestalt assumes what has the function which reproduces voice from music data with a pocket mold. In addition, as a terminal equipment, the pocket mold information machines and equipment which have a cellular-phone function and an image reconstruction function in addition to a voice regenerative function may be used. The memory card 2 of predetermined specification is used for the terminal equipment concerned. A memory card 2 has the memory area 20 which divides roughly, consists of a flash EEPROM and stores the downloaded music data, and CODEC-LSI21 which realizes coding/decryption function of data. The memory card 2 has memorized ID information (equivalent to the identification information of a CODEC method) for identifying the model of the card 2 concerned to a memory area 20 or CODEC-LSI21.

[0020] (Data distribution actuation) Fundamentally, as shown in the flow chart of drawing 2 , the system (body 1 of a computer) of this operation gestalt judges

the conditions (distribution conditions or download conditions) when downloading the music data chosen from the library (HDD12), and determines a bit rate based on the conditions concerned (steps S1 and S2).

[0021] When a low bit rate is determined relatively, a system downloads selected music data to the memory card 2 of a terminal equipment with a low bit rate (YES of step S3, S5). On the other hand, when a high bit rate is determined relatively, a system downloads selected music data to the memory card 2 of a terminal equipment with a high bit rate (NO of step S3, S4).

[0022] Hereafter, an example is explained.

[0023] With distribution conditions or download conditions, it is equivalent to an application or a service condition in case a user uses a terminal equipment. As shown in drawing 1 , the menu screen for choosing the quality corresponding to voice quality with downloadable ****** on screen 10A is displayed by actuation of GUI10. Here, a display is classified up and down, top screen 10A is used as the screen related to the body 1 of a computer, and it assumes using bottom screen 10B as a screen related to a memory card 2.

[0024] If voice quality is chosen from menu screen 10A for every music name with two or more music names by actuation of GUI10, CPU11 will take out the

music data of the selected music name from HDD12, and will download them to a memory card 2 by it. Here, CPU11 is downloaded with the bit rate corresponding to the voice quality set up for every music name.

[0025] Drawing 3 is drawing showing the response relation between voice quality and a bit rate. That is, if high quality is chosen to a certain music name (XXXX), CPU11 will download the music data corresponding to a music name (XXXX) with a high bit rate (128kbps). Moreover, if low quality is chosen to a certain music name (YYYY), CPU11 will download the music data corresponding to a music name (YYYY) with a low bit rate (64kbps).

[0026] As mentioned above, when an application is assumed as distribution conditions, according to the selection actuation by GUI10, a system is a high bit rate (128kbps) and downloads the music data concerned to a memory card 2 to appreciate the music of a music name (XXXX) with a user in the voice quality of high quality. Thereby, a user can appreciate the music of the selected music name (XXXX) for high quality by reproducing with the terminal equipment equipped with a memory card 2.

[0027] Moreover, when low quality is sufficient as the voice quality when reincarnating a user, a system is a low bit rate (64kbps), and downloads the

music data concerned to a memory card 2. In this case, since it is a low bit rate and data size of music data is made small relatively, to a memory card 2, the music data of many music names are relatively downloadable according to the capacity of a memory area 20. Therefore, only while having taken the electric car, even if the tone quality of each music deteriorates somewhat as an application of a terminal equipment, it becomes possible to listen to the music of many music names as much as possible.

[0028] Furthermore, another example is explained with reference to the flow chart of drawing 4 .

[0029] Here, the body 1 of a computer of this operation gestalt assumes having the function which detects the remaining capacity (memorizable memory space) of the connected memory card 2, and having the function which displays it on screen 10B. On screen 10B, as shown in drawing 1 , it is constituted so that the operating size (memorizable data size) corresponding to a bit rate and information, such as the number of anticipation music, may be displayed in addition to the remaining capacity of a memory card 2.

[0030] CPU's11 detection of the remaining capacity of a memory card 2 sets up a bit rate automatically from the number of music (total number of the selected

music name) chosen by actuation of GUI10, and the remaining capacity concerned (steps S10 and S11). Namely, CPU11 computes data size memorizable from the remaining capacity concerned, and compares the data size concerned and the sum total data size of the number of music for every bit rate.

[0031] Here, when the music data for the number of music which the remaining capacity of a memory card 2 was insufficient, for example, was chosen also with the minimum bit rate cannot be downloaded, CPU11 performs predetermined error message processing on screen 10A (YES of step S12, S14). That is, the directions which increase storage possible capacity by reduction of the selected number of music or the memory clear of a memory card 2 are displayed.

[0032] If download is not a termination, CPU11 will repeat the processing from step S10 (NO of step S15). And CPU11 will perform download with the bit rate concerned, if a suitable bit rate (relatively high rate) can be set up from the selected number of music, and the remaining capacity of a memory card 2 (NO of step S12, S13).

[0033] As mentioned above, based on the remaining capacity of a memory card 2, and the number of music (equivalent to data size) chosen, a system sets up a

bit rate automatically as distribution conditions. Therefore, when the remaining

capacity of a memory card 2 is large, many numbers of music are chosen

relatively and it becomes the operating condition to which playback tone quality

falls relatively. Moreover, the number of music is chosen few relatively and

playback tone quality serves as a good operating condition relatively. On the

other hand, if the number of music is relatively lessened even when the

remaining capacity of a memory card 2 is small, playback tone quality will serve

as the situation of not falling so much. In short, according to the service condition

of a terminal equipment, it becomes possible to perform download by the

suitable bit rate automatically.

[0034] (Modification) Drawing 5 is a flow chart about the modification of this

operation gestalt. This modification is related with a system downloadable [with

the CODEC method which agrees with the CODEC method by the side of a

terminal equipment].

[0035] When a memory card 2 (or terminal equipment) is connected to the body

1 of a computer, CPU11 discriminates read-out and a CODEC method for ID

information from the memory area 20 or CODEC-LSI21 of a memory card 2

(step S20). If CPU11 is the same as that of the CODEC method of the identified

terminal equipment, and the CODEC method when keeping music data, download will be performed by the CODEC method concerned (YES of step S21, S22). Here, according to conditions (distribution conditions) of download which were mentioned above, download of the music data from the body 1 (namely, library) of a computer to a memory card 2 is performed.

[0036] On the other hand, when the CODEC method of the identified terminal equipment differs from the CODEC method when keeping music data, CPU11 changes the CODEC method concerned so that the CODEC method of a terminal equipment may be suited (NO of step S21, S23). And CPU11 performs download by the changed CODEC method concerned (step S24).

[0037] As mentioned above, to the CODEC method when keeping music data to a library, also in the case of the terminal equipment which has adopted a different CODEC method, music data are downloadable so that the CODEC method of the terminal equipment concerned may be suited. Therefore, it becomes possible to expand the object for data distribution of the contents data of the same specification (class of terminal equipment).

[0038] In addition, in this operation gestalt and the modification, although music data were assumed as contents data, also in the case of the image data of an

image or a static image, it can apply, without restricting to this. Moreover, not only the local system environment where a memory card 2 is connected to a personal computer but in the case of the network environment downloaded from a provider's server through the Internet, it is applicable as system environment in the case of downloading.

[0039]

[Effect of the Invention] As explained in full detail above, when downloading and distributing data to a terminal equipment according to this invention, a bit rate can be set up so that the distribution conditions relevant to an application, a service condition, etc. of the terminal equipment concerned may be suited. Therefore, data distribution which suits the operating condition of the memory card used for a terminal equipment and the application of a terminal equipment is realizable. Moreover, since download with a suitable bit rate can be performed automatically, the data distribution system which was excellent in operability can be offered. In short, the contents data demanded from the library are downloadable to a terminal equipment so that service conditions, such as an application of a terminal equipment and remaining capacity of a memory card, may be suited. In this, the application of a terminal equipment and the

amplification of a service condition which stored contents data enable it to aim at

improvement in the engine performance of a terminal equipment as a result.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The block diagram showing the data distribution structure of a system about the operation gestalt of this invention.

[Drawing 2] The flow chart for explaining fundamental actuation of the system about this operation gestalt.

[Drawing 3] Drawing showing the relation of the voice quality and the bit rate about this operation gestalt.

[Drawing 4] The flow chart for explaining the example about this operation gestalt.

[Drawing 5] The flow chart for explaining the download approach about the modification of this operation gestalt.

[Description of Notations]

1 -- Body of a computer

2 -- Memory card (terminal equipment)

3 -- Internet

10 -- GUI (display)

11 -- CPU

12 -- HDD

20 -- Memory area

21 -- CODEC and LSI